MIDI IN Installation Guide for the EMU Drumulator

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CYMBAL
HATS
SNARE/RIM
BASS
E-mu Systems, Inc.

produced by: Ohio Sound Labs
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WARNING: This installation process is the user's responsibility and shall be followed at their own risk!

To complete this modification the procedure requires some basic tools and soldering equipment. This is only a guide and assumes that the reader has some knowledge regarding the electronics, tools, soldering equipment and the procedures involved to complete the installation of this mod kit.

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Be sure to UNPLUG the unit before working on the inside, the exposed voltage inside the unit has the potential to be very dangerous!

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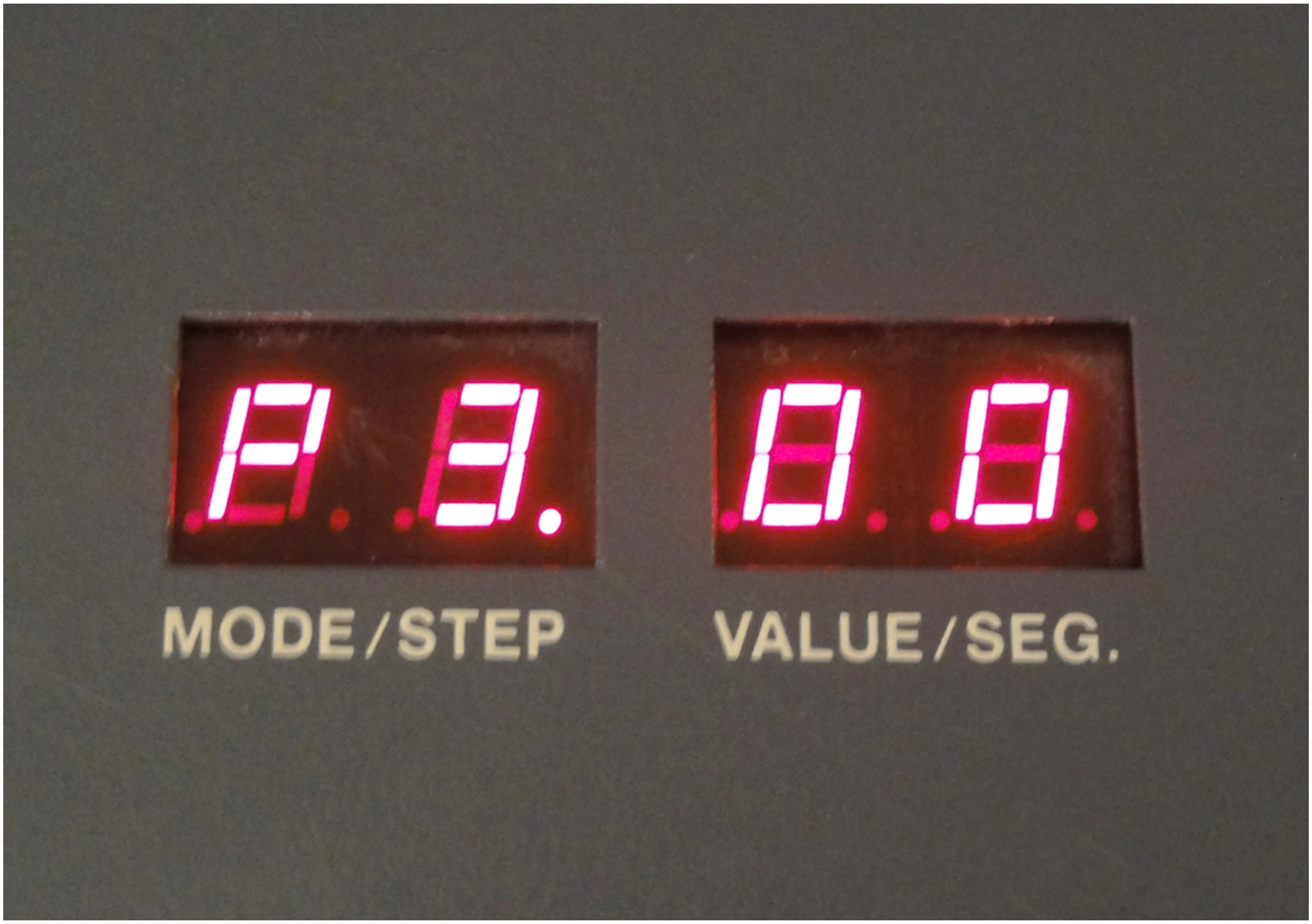

Figure 1 - OS check shows Version 3.00 installed

Check the Drumulator OS Version:

1. Before opening the Drumulator up, check what OS version is installed
2. You will need at least OS version 3.00 to use the MIDI IN functionality
3. How to check what version of the OS is installed on your Drumulator
    - press and hold both the MEM and CASS buttons together
    - the OS version will be displayed as shown in Figure 1 above
4. If you already have OS version 3.00 you can skip the section on installing it.

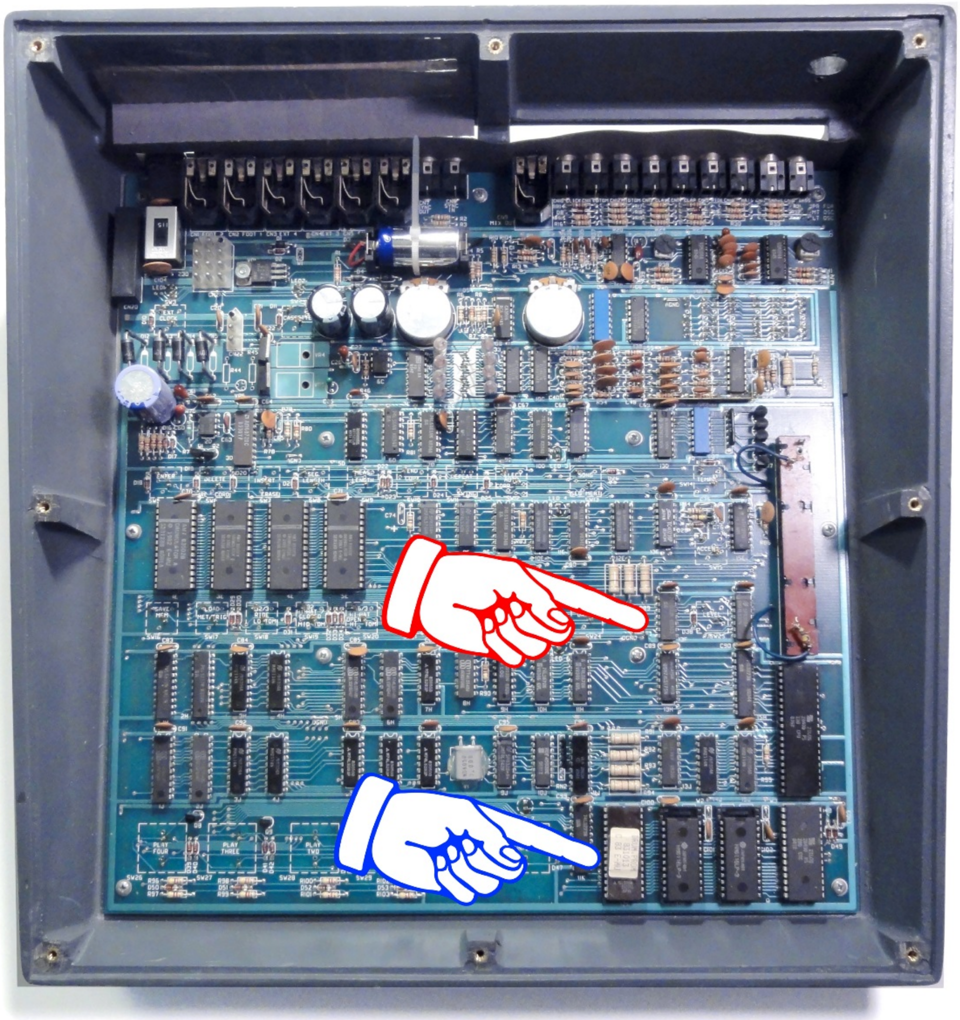

Figure 2 - Location of the 74LS00 chip and the OS chip

Opening the Drumulator:

1. Unplug the Drumulator from the power outlet
2. Flip the Drumulator over
3. Remove the 8 screws that hold the bottom panel in place
4. Remove or set aside the bottom panel in order to access the mainboard
    - The bottom panel is wired to the main board, take care while removing it
    - Depending on the unit's revision, you may or may not be able to unplug the bottom panel from the mainboard
5. Once opened, the inside should be similar to that shown in Figure 2
    - the locations of the OS chip and 74LS00 chip are pointed out in Figure 2
    - these chip locations will be important in the MIDI and OS installation process

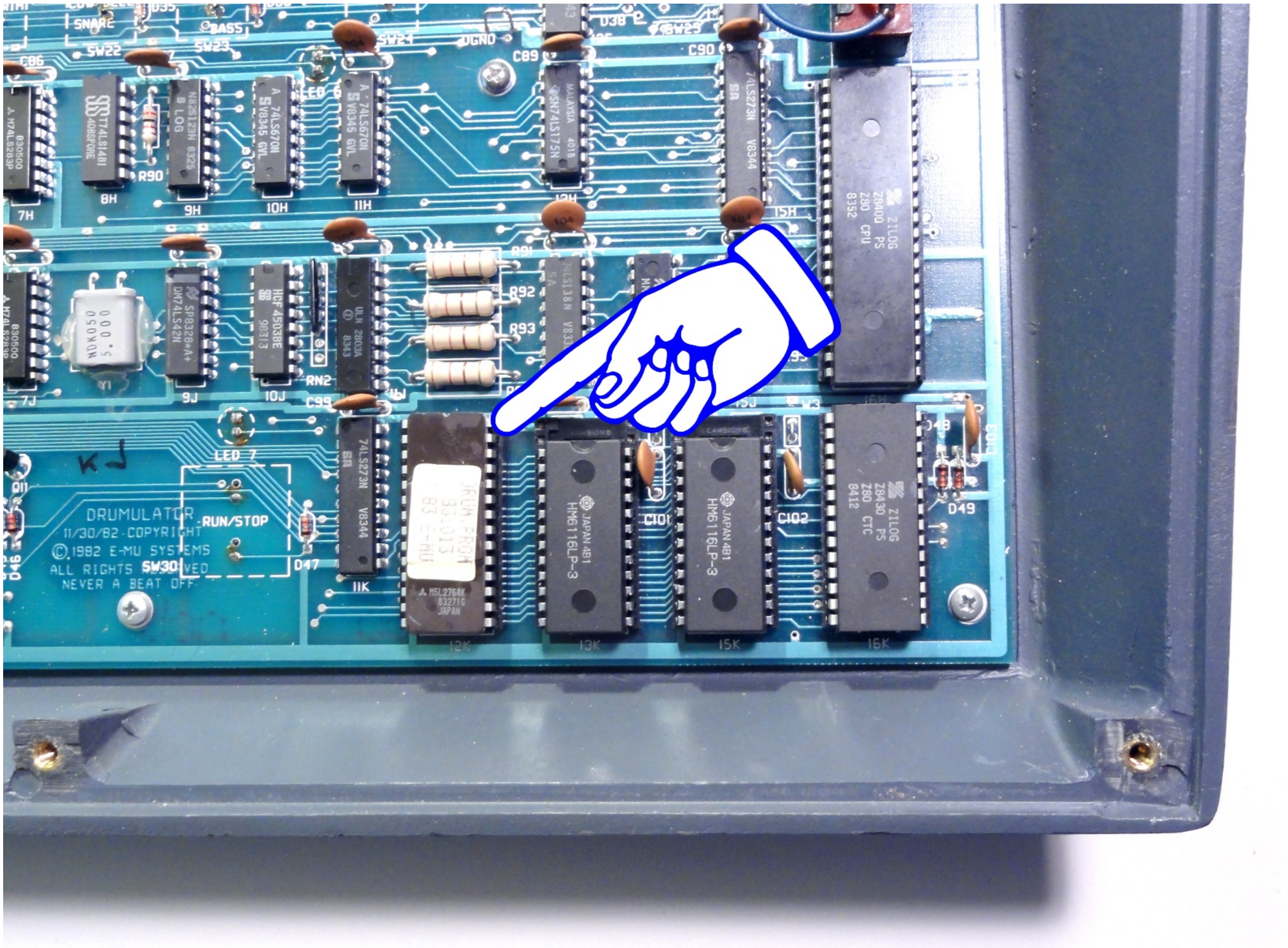

Figure 3 - Location of the OS chip

Installing the Drumulator OS Chip:

1. If you already have OS version 3.00 installed you can skip this step
2. Locate the original OS chip
    - The OS chip location is pointed out in Figure 3 shown above
    - The OS chip location is also pointed out in Figure 2 on page 4
    - It is located just below the 4 large off white colored resistors
3. Remove the original OS chip from the socket
    - make note of the orientation of the notch on the chip
4. Install the OS version 3.00 chip in the socket
    - Be sure the chip is correctly oriented in the socket, with the notch at the top in the same orientation as the original chip was
    - Be careful to properly align the chip pins with the socket before inserting it to prevent bending or damaging the pins

Clearing All Data - ‘Poof’ procedure:

After the OS version 3.00 chip is installed it may display “BaD” error message at startup. This is because the sequencer data from previous OS version is not compatible with the newly installed OS version 3.00. The ‘PooF’ procedure can be found in the owner’s manual in Section 2: Recording Segments – 2M Clearing All Data. ***If you have any saved songs or patterns make sure to back them up before proceeding.*** See owner’s manual for information on backing up song and pattern data.

‘Poof’ Routine Clearing All Data:

1. Switch the machine off, then switch it back on
2. Select SEGMENT mode by pressing the SONG/SEGMENT button
3. Press and HOLD the ERASE button
4. While holding the ERASE button, press the CASSETTE button
5. The display will now show a flashing ‘PooF’ message
6. While still holding the ERASE button, press the ENTER button, the metronome will beep once
7. Release the ERASE button
8. The procedure is now completed
9. The ‘BaD’ message should now no longer be displayed at startup.

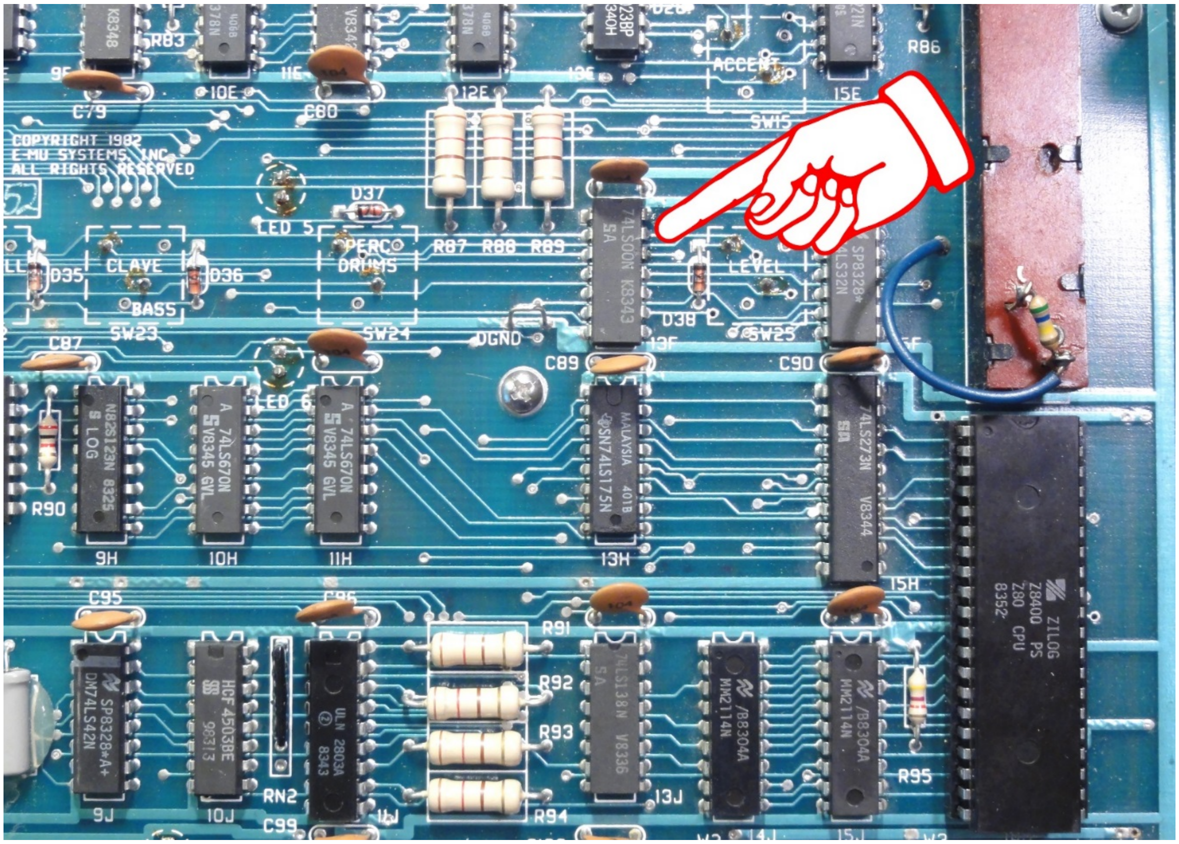

Figure 4 - Location of the 74LS00 chip

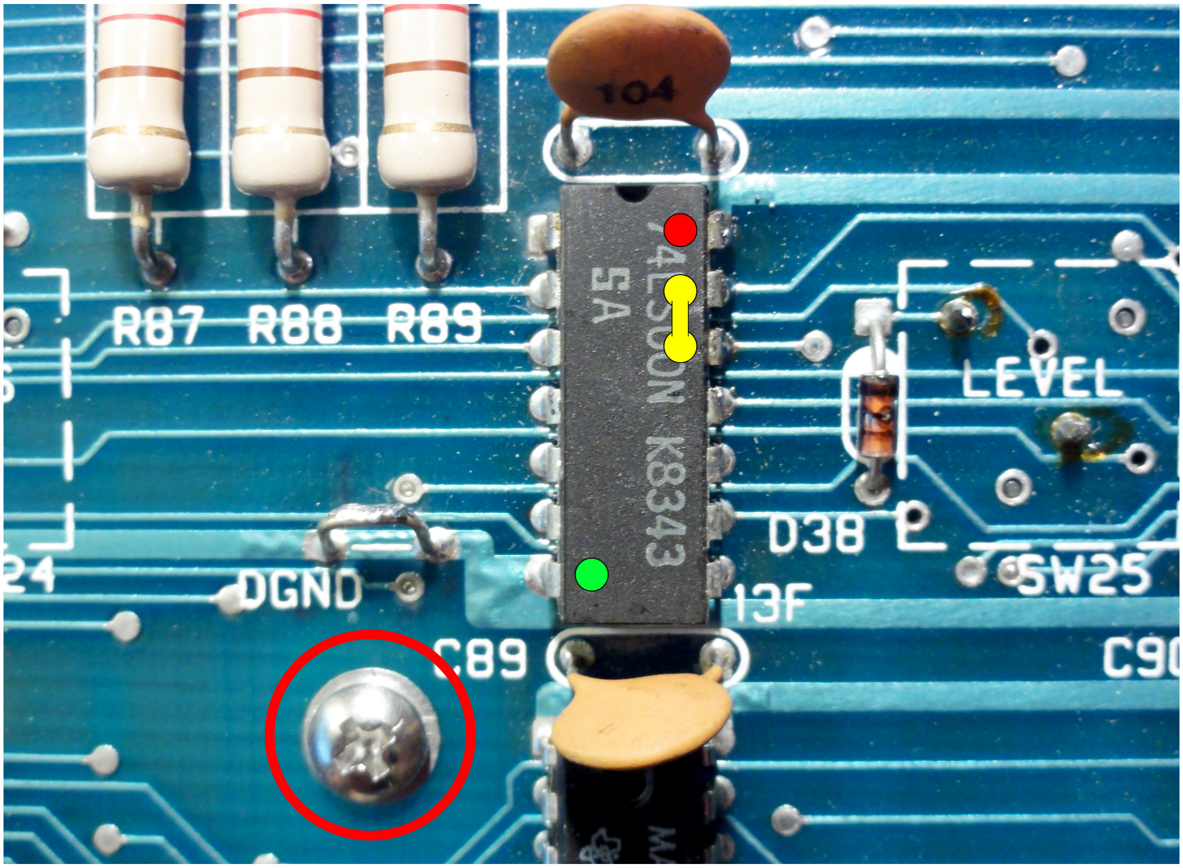

Figure 5 - Closer view of the 74LS00 chip with color-coded pins

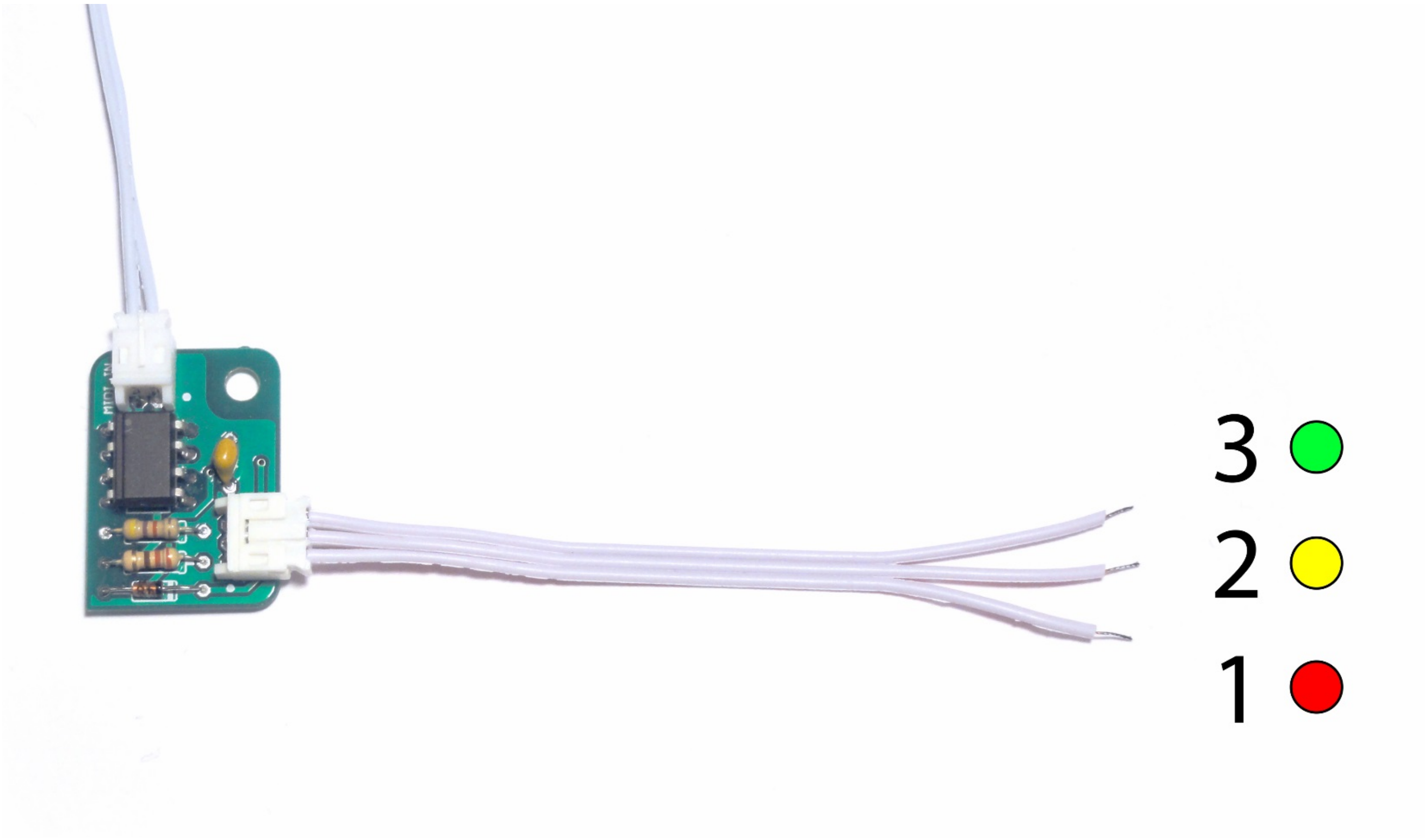

Figure 6 - MIDI board bare wires numbered and color-coded

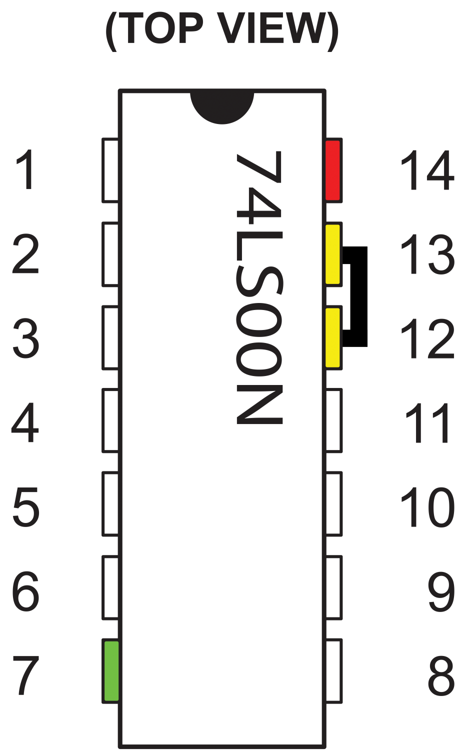
(TOP VIEW)
74LS00N
1
2
3
4
5
6
7
14
13
12
11
10
9
8

Figure 7 - Diagram of the 74LS00 chip with pin numbers and color-coding

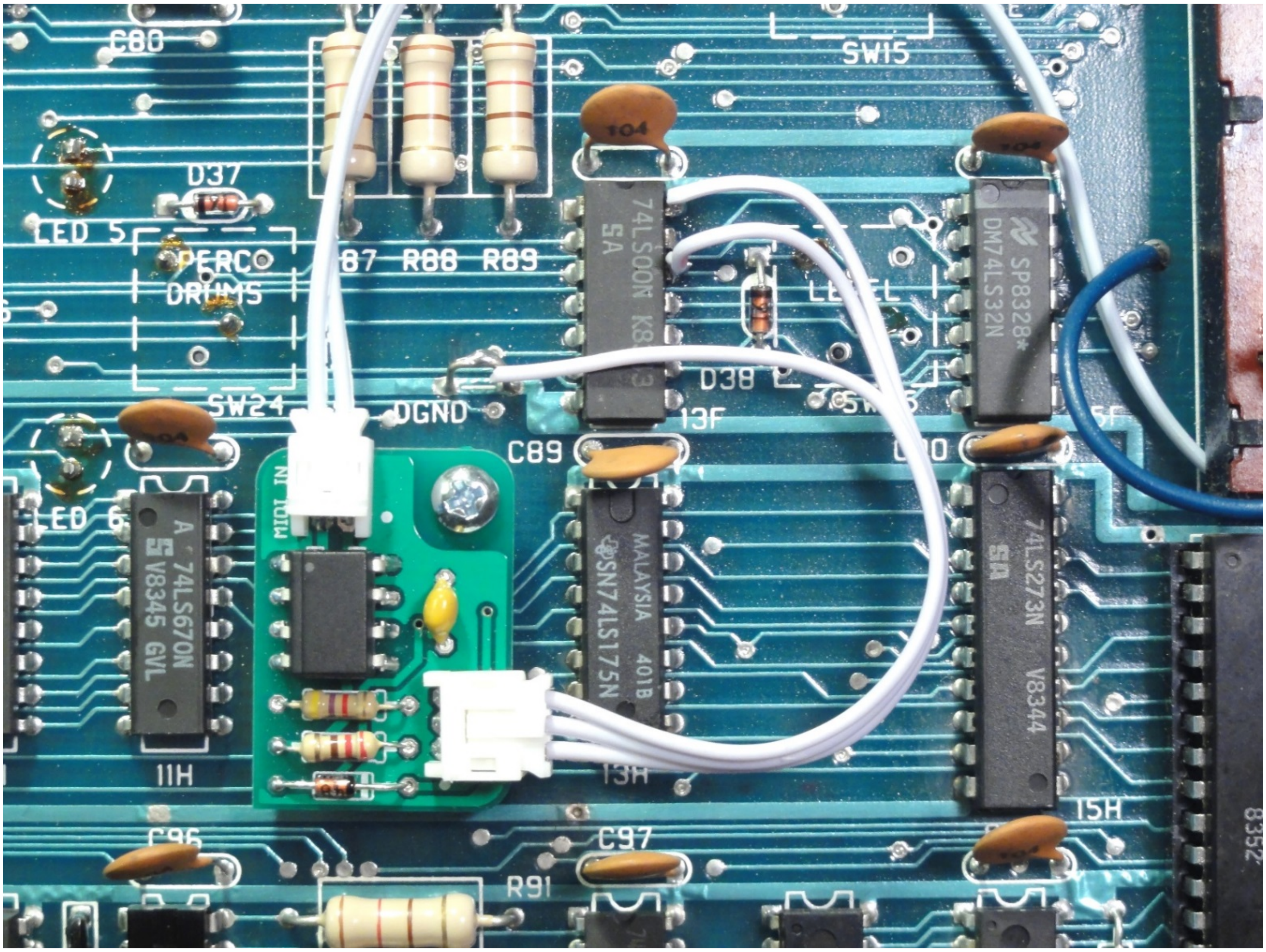

Figure 8 - MIDI board mounted with wires soldered to correct pins of the 74LS00 chip

Installing the MIDI IN Board:

1. First locate the 74LS00 chip
    - This chip is pointed out in Figure 4 on page 7 and also in Figure 2 on page 4
    - It is right next to 3 large off white resistors
    - A closer view of the chip is shown in Figure 5 on page 7
    - It is labelled 13F in white screen print on the main board
2. Solder the bare wires to the 74LS00 chip
    - The three wires on the MIDI board need to be connected to the 74LS00 chip
    - Refer to Figure 5, 6, and 7 on pages 7 and 8
    - Connect wire 1 to pin 14 of the chip (color-coded red)
    - Connect wire 2 to pin 12 and pin 13 of the chip, ***bridge the pins together with solder*** (color-coded yellow)
    - Connect wire 3 to pin 7 of the chip or to the test point beside pin 7 labeled DGND (color –coded green)

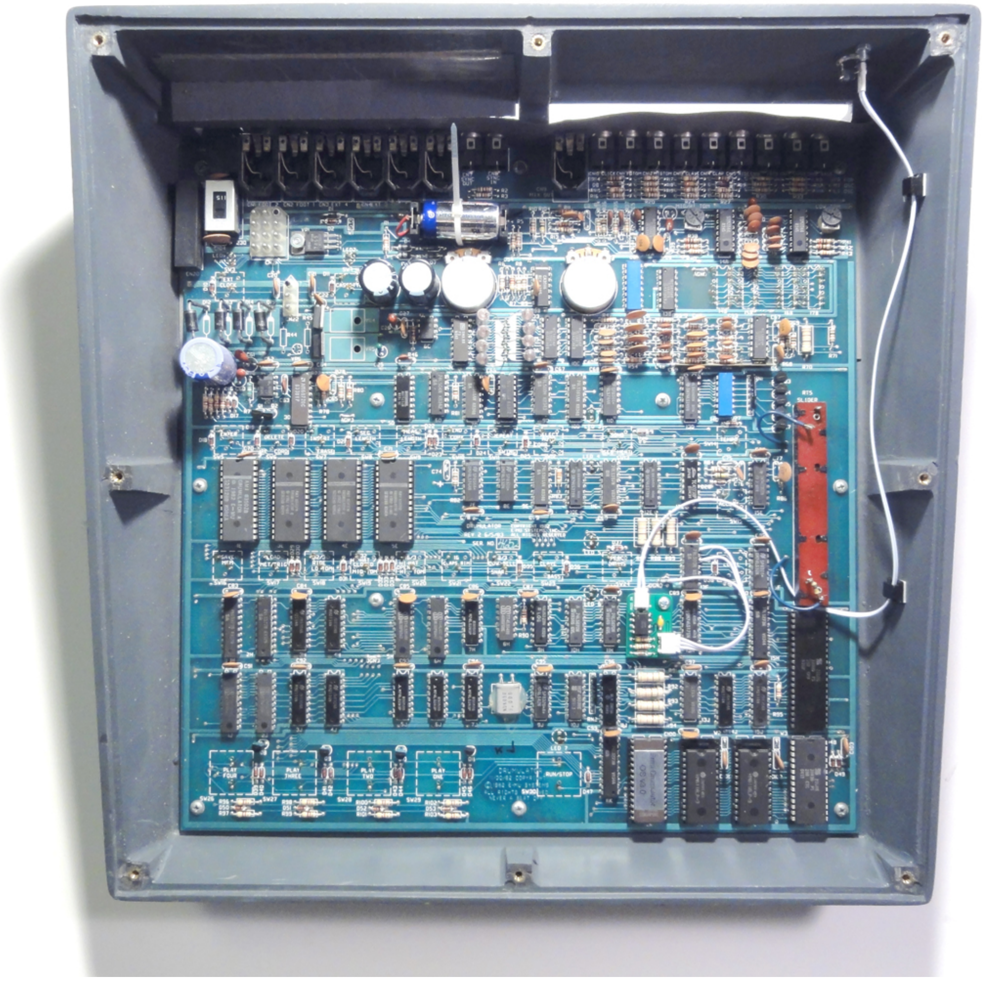

Figure 9 - MIDI board and MIDI jack installed and mounted in place.

Installing the MIDI IN Board Continued:

3. Mount the MIDI board using the screw and standoff provided
    - Remove the screw located by the 74LS00 chip
    - Mount the board using the provided hardware as shown in Figure 8 on page 9
4. Mount the MIDI IN jack
    - Decide where you want to mount the MIDI IN jack
    - Unplug the MIDI jack from the MIDI board
    - Drill an approx. 5/8" hole in the case to mount the MIDI jack
    - Place the MIDI jack into the drilled hole
    - Drill two approx. 1/8" holes for the 2 screws used to secure the jack in place
    - Secure the MIDI jack in place using the provided hardware
    - Plug the MIDI jack back into the MIDI board
    - Use the provided adhesive wire clips to hold the wire along the side of the case

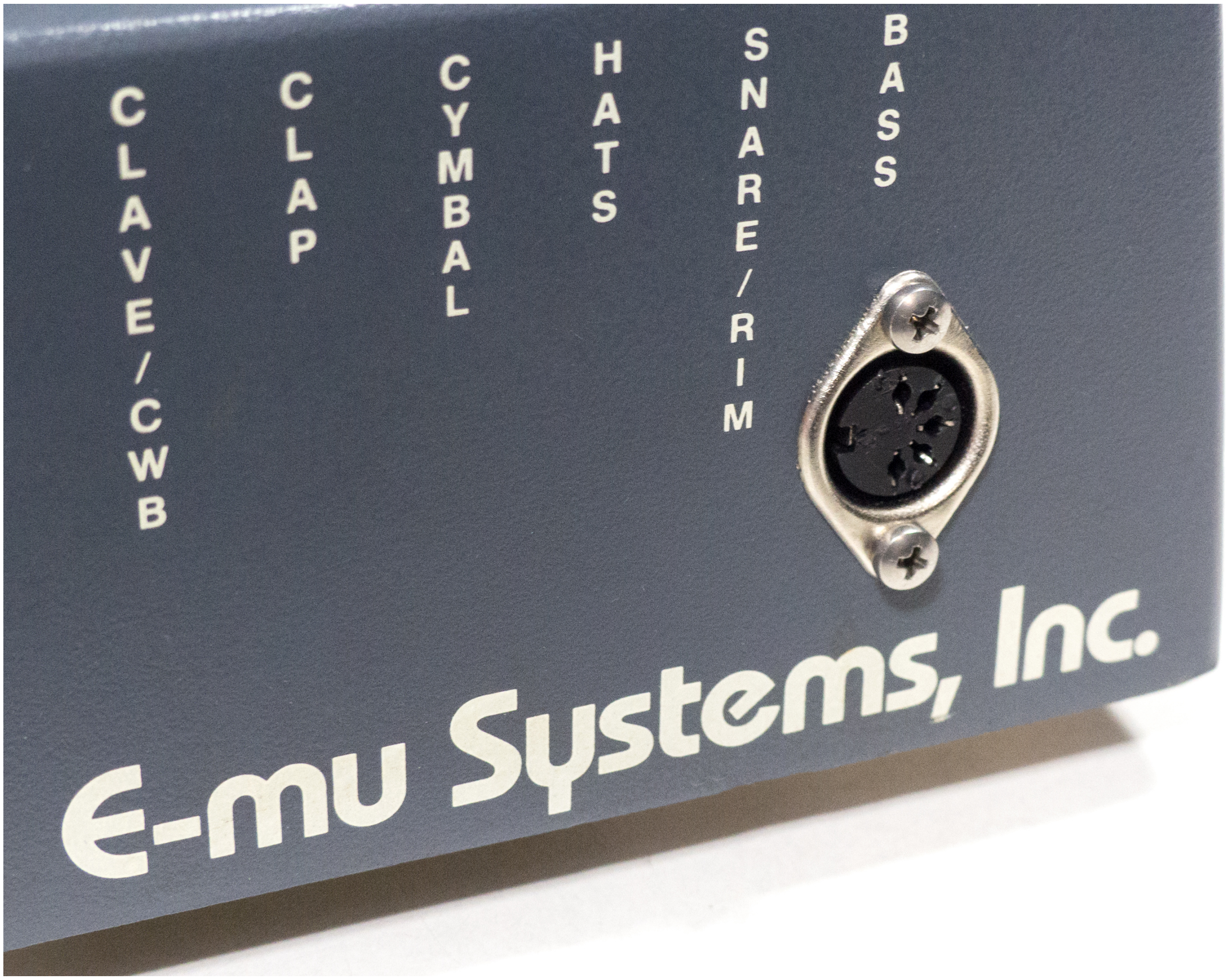
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Figure 10 - MIDI IN jack mounted on the back of the Drumulator

Finishing the MIDI IN Board Installation:

5. Finish up the installation
    - Double check your work, be sure that the MIDI board is correctly installed
    - Remove and clean out any shaving left from drilling holes to mount the MIDI jack
    - Close up the case and finish the installation

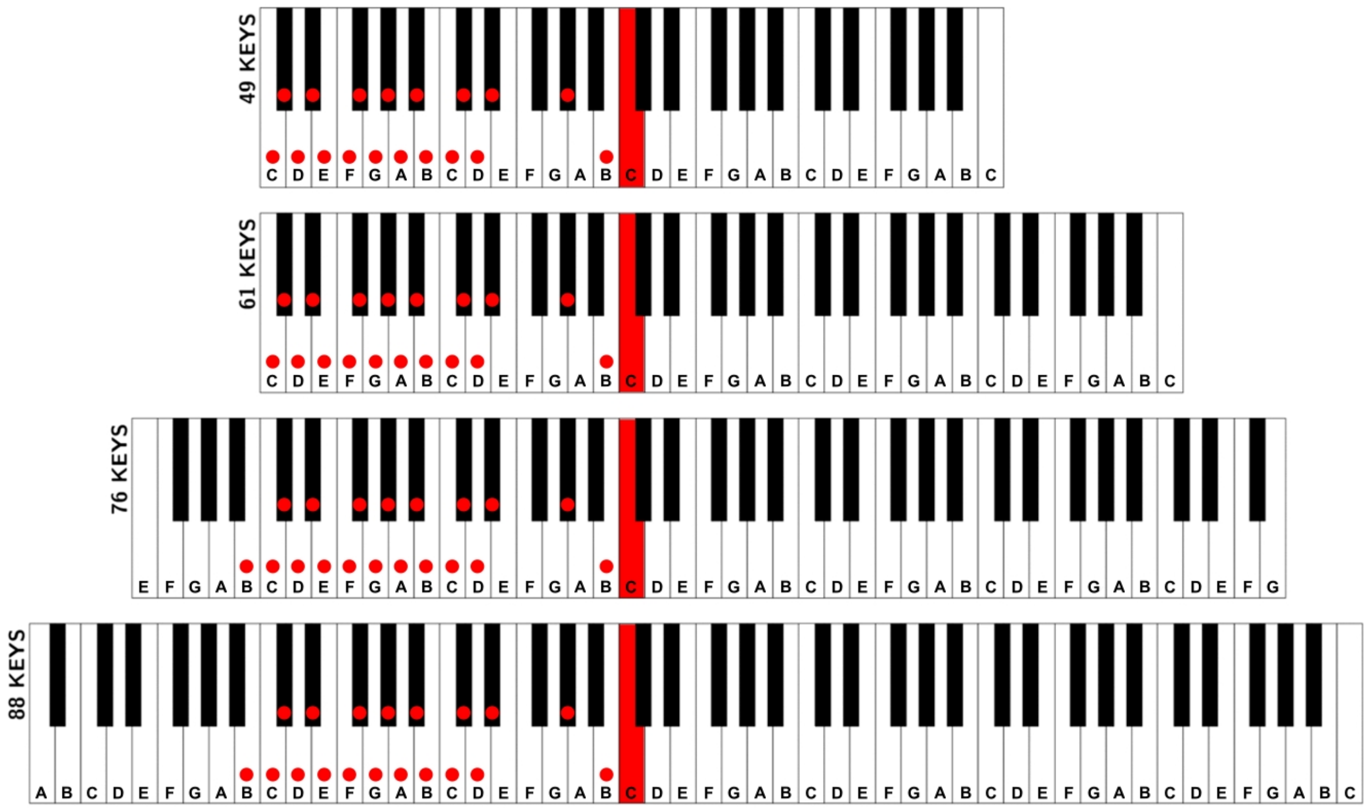
49 KEYS
C D E F G A B C D E F G A B C D E F G A B C D E F G A B C
61 KEYS
C D E F G A B C D E F G A B C D E F G A B C D E F G A B C D E F G A B C
76 KEYS
E F G A B C D E F G A B C D E F G A B C D E F G A B C D E F G A B C D E F G A B C D E F G
88 KEYS
A B C D E F G A B C D E F G A B C D E F G A B C D E F G A B C D E F G A B C D E F G A B C D E F G A B C

Figure 11 - Notes marked with a Red Dot correspond to a Drumulator sample

Using the MIDI IN Functionality:

1. Selecting the MIDI IN channel
   - Turn on the Drumulator
   - Press and hold the EXTERNAL CLOCK button
   - The display now shows EC XX, where XX is the selected MIDI channel between 01 – 16
   - Press the < or > buttons to change the MIDI channel as needed
2. Enter MIDI IN mode
   - To use the MIDI IN functionality you must first enter into the MIDI IN mode
   - Enter into MIDI IN mode
     - Press and hold the EXTERNAL CLOCK button then press the RUN / STOP button.
     - The LED display should turn off once you have entered the MIDI IN mode
3. Connect a MIDI OUT source
   - The MIDI OUT channel on your MIDI controller must match the MIDI IN channel selected
   - Connect a 5-pin MIDI cable to the MIDI OUT port of your MIDI controller
   - Connect the other end of the MIDI cable to the MIDI IN jack on the Drumulator

Using the MIDI IN Functionality Continued:

4. Playing Drumulator Samples via a MIDI controller
    - Drumulator samples start at the Middle C key (C4) on a standard MIDI keyboard
    - Middle C (C4) is the solid red key shown in Figure 11 above
    - The keys with a red dot correspond to Drumulator samples that can be played via MIDI
    - Drumulator samples are also velocity sensitive via MIDI

Some tools needed or that may be helpful for installation process: